

An Integrated Electronic Patient Record at Boston's Beth Israel Hospital

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Clinical Computing System

The Beth Israel Hospital clinical computing system, developed by the Center for Clinical Computing, is a heavily used, integrated hospital information system. There are more than 5000 terminals and workstations located throughout the hospital and its ambulatory and satellite facilities. Each week, clinicians access patient information more than 60,000 times and send more than 30,000 pieces of electronic mail.

The system's 27,000 computer programs, written in the MIIS dialect (Medical Information Technology, Inc.) of MUMPS, run on a network of interconnected Data General minicomputers. These computers are used 24 hours a day, seven days a week.

Clinicians can obtain results from clinical laboratories, read diagnostic reports, view lists of medications used during hospitalizations, perform bibliographic retrieval, and obtain help in making clinical decisions. They can also retrieve administrative information, such as beeper and phone numbers, physicians' clinical schedules, and cross-coverage information.

Online Nursing Assessment

Since 1994, Beth Israel nurses have been using an online assessment program for documentation on all inpatient medical and surgical units, as well as in the Emergency Department. This system has facilitated communication between nurses and has reduced the average time required to perform an admission patient assessment from 60 to 30 minutes.

Online Medical Record

The Online Medical Record (OMR) is fully integrated with the Beth Israel clinical computing system. Any terminal or workstation in the hospital or in clinicians' offices has complete access to information contained in the OMR and the hospital system. There is only one registry of patients; no duplication of patient identifiers or demographic information is necessary.

The OMR was designed to meet the following criteria: the clinician should interact frequently with the system, there should be no transcription from paper forms, and data entry should be shared among clinicians and others on the hospital's staff.

Primary care practice

The OMR was initially developed for the primary care internal medicine practice, Healthcare Associates (HCA), at Beth Israel Hospital. All clinicians (physicians and nurse practitioners) at HCA use the OMR to keep track of patients' problems and medications and to store information on preventive care and health screening. Clinicians also type progress notes directly into the computer or dictate notes that are subsequently transcribed. Transcribed notes are edited and signed online by clinicians.

Since the computing system was introduced in our ambulatory practice in February 1989, staff physicians, nurse practitioners, and residents have recorded more than 93,000 problems, 184,000 prescriptions, and 110,000 notes for 17,000 patients.

Subspecialty practice

The OMR is being expanded to include multiple hospital-based and satellite ambulatory primary care and subspecialty practices within the Beth Israel Hospital network. Currently, 26 different practices are using the OMR, including hematology-oncology, cardiology, psychiatry, ophthalmology, otolaryngology, endocrinology, and obstetrics-gynecology.

Confidentiality

Our methods for protecting confidentiality include tracking every instance of looking up clinical information and making the identity of the person who has looked up information available to every patient upon request. In addition, we allow the author of a note to monitor its usage. Recently, we have begun requiring users to enter the reason they are accessing a patient's record and forwarding this information to the patient's primary care provider.